

REMARKS

Claims 1-3, 5-13, and 15-21 are pending in the application. Claims 4 and 14 are cancelled. Applicant respectfully requests for allowance of all the pending claims based on the following discussion.

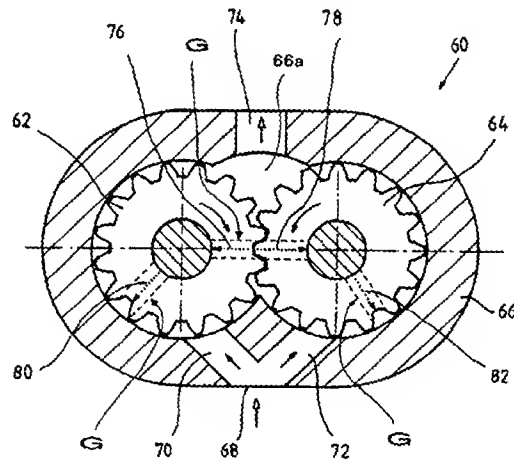
Rejections under 35 U.S.C. §103

Claims 1-3, 5-7 and 9 are rejected under 35 USC 103(a) as being unpatentable over PCT Patent Application No. WO 01/16489 to Sagawe et al. (hereinafter referred to as “Sagawe”) in view of US Patent No. 3,677,664 to Wycliffe et al. (hereinafter referred to as “Wycliffe”). It is noted that Sagawe as originally cited by Examiner is a PCT application published in a non-English language. For the ease of communication, the following discussion will be based on the PCT application’s later issued US Patent No. 6,705,847.

Claim 1 is directed to a screw pump comprising: a chamber defining with first and second externally threaded rotors mounted on respective shafts rotatably disposed for counter-rotation within the chamber a plurality of flow paths having respective fluid inlets wherein a first one and a second one of the respective inlets are located at a common low pressure side of the chamber and on a common plane, and wherein threads of the first and second rotors are intermeshed at a location adjacent to the first and second inlets, such that fluid entering the chamber via the first and second inlets is moved through the flow paths by the first and second rotors in a manner of positive displacement, wherein the flow paths are isolated from each other such that pressure differentials are maintained among the flow paths when the screw pump is in operation.

Sagawe does not teach or suggest “the flow paths are isolated from each other such that pressure differentials are maintained among the flow paths when the screw pump is in operation.” As shown in FIG. 3 of Sagawe, gas chambers on the left and right are connected by connecting channels 76, 78, 80, and 82 constructed by grooves G indicated by the dashed lines. In Sagawe, the gas chamber on the left is not isolated from the one on the right. It is noted that the office action offers no explanation or assertion as to whether or not Sagawe teaches “the flow paths are isolated from each other such that pressure differentials are maintained among the flow paths when the screw pump is in operation.” Clarification is respectfully requested.

It would not have been obvious for a person skilled in the art to modify Sagawe by isolating the gas chamber on the left from the one on the right. The primary objective of Sagawe is to provide a rotary displacement machine in which turbulence in the gas supply



area is prevented, and filling of the gas conveying chambers is improved. *See, col. 1, line 65 – col. 2, line 5.* The objective is achieved by the connecting channels 76, 78, 80, and 82, which guide the gas being pushed out from the meshing area between the gears toward the gas chambers on the left and right formed by the teeth of the gears and their corresponding inner surfaces of the housing 66. *See, col. 5, lines 28-39.* The connecting channels are constructed by grooves G indicated by the dashed lines on the inner side 66a of the housing 66 facing the gears. *See, col. 5, lines 39-43.* If the connecting channels

76, 78, 80, and 82 were removed, the gears would not have been able to push the gas trapped at the meshing area toward the gas chambers on the left and right. This would have defeated Sagawe's objective, i.e., preventing the turbulence and improving the filling in the gas chambers. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733, F.2d 900 (Fed. Cir. 1984). Thus, Applicant respectfully submits that it would not have been obvious for a person skilled in the art to modify Sagawe by isolating the flow paths from each other.

Moreover, Sagawe teaches a machine where the gas pressures in two chambers are more likely to be equalized than differentiated, when the machine is in operation. For example, in a situation where the gas pressure in the first chamber on the left is greater than the gas pressure in the second chamber on the right, as the gears rotate, it can be appreciated that more gas would be pushed out from the meshing area into the second chamber than the first chamber. As a result, Sagawe's machine tends to equalize the gas pressures between two chambers, instead of maintaining the pressure differential there between.

Furthermore, although Sagawe teaches two supply channels 70 and 72, they are joined at a common, single inlet 68. This is further evidence that Sagawe's machine is not designed to be connected to two separate gas sources, and maintain the pressure differential there between throughout the machine.

It is noted that Wycliffe is cited for its general teaching of a screw pump, and not relied on by Examiner for the teaching of "the flow paths are isolated from each other

such that pressure differentials are maintained among the flow paths when the screw pump is in operation.”

As such, Applicant respectfully submits that claim 1 is patentable over Sagawe in view of Wycliffe under 35 USC 103(a). Accordingly, claims 2, 3, 5-7 and 9 that depend from claim 1 and include all the limitations recited therein are also patentable over Sagawe in view of Wycliffe under 35 USC 103(a).

Claim 8 is rejected under 35 USC 103(a) as being unpatentable over Sagawe in view of Wycliffe, and the legal precedent purported by Examiner.

For the reasons discussed above, Applicant respectfully submits that independent claim 1 is patentable over the prior art of record under 35 USC 103(a). Accordingly, claim 8 that depends from claim 1 and includes all the limitations recited therein is also patentable over Sagawe in view of Wycliffe and the purported legal precedent under 35 USC 103(a).

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Sagawe in view of Wycliffe, and US Patent No. 6,196,810 to Taniguchi et al. (hereinafter referred to as “Taniguchi”).

For the reasons discussed above, Applicant respectfully submits that independent claim 1 is patentable over the prior art of record under 35 USC 103(a). Accordingly, claim 10 that depends from claim 1 and includes all the limitations recited therein is also patentable over Sagawe in view of Wycliffe, and Taniguchi under 35 USC 103(a).

Claims 11-13, 15-17, and 19-21 are rejected under 35 USC 103(a) as being unpatentable over Sagawe in view of Taniguchi and Wycliffe.

Independent claim 11 includes “the first and second flow paths are isolated from each other such that pressure differentials are maintained between the first and second flow paths when the screw pump is in operation.” It is noted that Taniguchi is not relied on by Examiner for the teaching of “the first and second flow paths are isolated from each other such that pressure differentials are maintained between the first and second flow paths when the screw pump is in operation.” For the reasons discussed above, Applicant respectfully submits that claim 11 is patentable over Sagawe in view of Wycliffe and Taniguchi under 35 USC 103(a).

Accordingly, claims 12-13, 15-17, and 19-21 that depend from claim 11 and include all the limitations recited therein are also patentable over Sagawe in view of Taniguchi and Wycliffe under 35 USC 103(a).

Claim 18 is rejected under 35 USC 103(a) as being unpatentable over Sagawe in view of Taniguchi, Wycliffe, and the legal precedent purported by Examiner.

For the reasons discussed above, Applicant respectfully submits that independent claim 11 is patentable over the prior art of record under 35 USC 103(a). Accordingly, claim 18 that depends from claim 11 and includes all the limitations recited therein is also patentable over Sagawe in view of Taniguchi, Wycliffe and the purported legal precedent under 35 USC 103(a).

CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee required by this submission to deposit account number 50-4244.

Respectfully submitted,

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